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ABSTRACT

This unit was previously tried out during the spring of 1965 in New Jersey, and in the fall of 1965 in conjunction with the Introduction to Geography Unit (SO 000 431). It was then revised for this trial with four other units in the fall of 1966. At the beginning of the trial, the participating seventy teachers administered the verbal sections of the Cooperative School and College Ability Test (SCAT), Form 3A, to 3,034 seventh through twelfth grade students. They also administered a pretest in geography. Following the teaching of each unit, a unit test was administered to all of the students to measure understanding of the basic concepts taught in the unit. Students and teachers then filled out forms evaluating unit effectiveness. Teachers also evaluated the activities in each of the four parts of the unit: 1) The Location of Settlements; 2) Accessibility and Land Use Patterns; 3) Growth of the Cities; and, 4) Planning for Growth. In conclusion, many teachers commented that the greatest strength of the unit was its success in motivating and interesting a large number of students over an extended period, along with its timeliness and relevance to the lives of the students. The unit test and the results, the evaluation forms and the statistics are appended. See SO 000 430, SO 000 432, and SO 000 434 for the reports on the other units. (SBE)

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INSIDE THE CITY:
Evaluation Report From a Limited School Trial of a Teaching Unit of the High School Geography Project

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December 1966

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NOTE

The High School Geography Project is a course content improvement program in geography sponsored by the Association of American Geographers and supported by the National Science Foundation. The Project's goal is the development of new geography teaching materials at the tenth grade level. Current work is concentrated on development of materials following a course outline on a Settlement Theme.

Further information on the status and plans of the AAG project is available from:

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INSIDE THE CITY UNIT

SUMMARY OF RECOMMENDATIONS FOR REVISING THE UNIT

The following suggestions summarize the major points made in the body of the report.

(1) The test results and the enthusiastic response of both students and teachers suggest that the unit as a whole is a successful teaching instrument in approximately its present form.

(2) The reading material provided for the students was better received by students than the readings in any other unit or in previous trials of this unit. The vocabulary, reading level, and subject matter seem appropriate for most of the students. However, we recommend providing the students with additional information. This might take the form of a summary of each part of the unit. In addition, we suggest including student materials for many of the activities so that a student's full understanding of a concept does not depend on his being present and fully attentive in class. We urge that students be given copies of the Portsville narrative.

(3) The unit is somewhat long for the amount of time recommended. The elimination or shortening of one or two activities, or the addition of one or two class days, should be sufficient to overcome this problem.

(4) The teacher's guidelines were extremely helpful for the teachers, and they successfully anticipated many of the teachers' needs. However, we suggest providing the teacher with further relevant geographic background, supplementary reading materials for the students, and guidelines for evaluating student progress, possibly in the form of a quiz at the end of each Part of the unit.

(5) Test results and teacher and student comments point to certain areas in the unit that need additional emphasis. The specific areas needing work are mentioned in the suggestions for revising the activities. In general, the activities involving the plotting and reading of graphs were the most difficult for the students. An optional activity explaining these basic skills should be considered. Perhaps the appropriate place for this activity would be in the introductory unit for the course as a whole.

(6) Part III of the unit, which was almost totally devoted to the construction of Portsville, was the most interesting set of activities for a majority of the students. However, the activities were not as effective in teaching the concepts as they were in promoting student interest. Test results indicate that Portsville should be reinforced by emphasizing the concepts to be taught.

(7) Indications are that Part IV of the unit, devoted to a study of urban planning, was relatively ineffective in teaching students its basic concept. However, fewer than half of the teachers included these activities because of time limitations.

(8) The unit test, in general, was judged by most teachers as an adequate measure of the content of the unit. However, in a revision of the test, care should be taken to reduce the general level of vocabulary, which was judged by some teachers to be above the level of the unit's vocabulary. Some of the questions should be geared more to the general conceptual ideas transmitted by the unit, rather than to specific information that students and teachers did not think was expected of them.

DESCRIPTION OF THE LIMITED SCHOOL TRIALS

A. Purpose of Report

The evaluation report of the Inside the City unit is designed to serve two purposes. Of primary importance is the need to provide the unit authors and others responsible for revision with suggestions for modifying the unit. At the same time, statements about the unit's effectiveness are needed to assist in the development and revision of other units. It is hoped that this evaluation may be helpful in formulating materials which are even more effective in accomplishing the educational objectives of the High School Geography Project.

B. Background Information

The Inside the City unit is one of several units being developed by the High School Geography Project to constitute a geography course for high school students. The course is based on a settlement theme. This unit was previously tried out during the spring of 1965 by approximately 200 students in New Jersey. During the fall of 1965 it was again taught in conjunction with the Introduction to Geography unit and the Fresh Water Resources unit to about 2,200 students in California, Illinois, Ohio, and New Jersey. On the basis of student and teacher reactions and test results, the unit was revised for the Limited School Trials.

The Limited School Trial of the Inside the City unit was held during the fall of 1966. It was one of 5 units taught, following the Introduction and preceding the Networks of Cities unit, the Manufacturing unit, and the Political Processes unit.

C. Evaluation Instruments

At the beginning of the trial the participating teachers administered the verbal sections of the Cooperative School and College Ability Test (SCAT), Form 3A, to estimate the verbal ability of the students in relation to other high school students. The teachers also administered a pretest in geography. There were four different forms of the pretest, each consisting of different questions from the posttests of the five units in the Limited School Trials. Each form of the pretest was given to one-fourth of the trial students. Following the teaching of each unit, a unit test was administered to all of the students. A copy of the test for this particular unit is in Appendix D. At the end of each unit, students and teachers filled out forms evaluating the effectiveness of the entire unit. Teacher evaluations are in Appendix A and student evaluations are in Appendix C. Teachers also completed forms evaluating the different parts of the unit, and their evaluations of the activities are in Appendix B.

Suggestions for revising the unit that appear in this report are based on the results of the pretest, unit test, and the evaluation forms completed by teachers and students. Analysis of student reactions was based on a twenty percent random sample of student questionnaires.

D. Description of Teachers

There were seventy teachers selected by HSGP in the Limited School Trials. Twenty of the seventy teachers selected for the Limited School Trials had previously taught the unit in the 1965 limited trials, twenty-five of the teachers were instructed by the HSGP in the use of materials and objectives of the course, and twenty-five teachers were given no instruction in the use of the materials. The seventy teachers were located in fourteen cities throughout the country. Fifty of the teachers taught in the West or Midwest.

According to information obtained by the HSGP, the mean number of semester hours in geography of the seventy teachers was approximately fifteen, and the mean number of semester hours in history, sociology, economics, and other social sciences was approximately forty-nine. Almost sixty percent of the teachers had six or more years of teaching experience, although only thirty-five percent had been teaching geography for six years or more. Twenty of the teachers had majored in geography as either undergraduate or graduate students. Sixty-four of the seventy teachers taught the HSGP course in public schools, three taught in parochial schools, and three in independent schools.

E. Description of the Students

The total number of students in the trial was 3,034. There were 1,612 boys and 1,422 girls. Approximately fifty-seven percent of the students were ninth graders, twenty-three percent were tenth graders, ten percent were twelfth graders, six percent were eleventh graders, and three percent were seventh or eighth graders. About half of the participating students came from schools with a total enrollment between 750 and 1,500. Sixty percent of the schools were located in middle income communities, twenty percent in low income communities, and twenty percent in high income communities.

Performance of the students on the verbal section of the Cooperative School and College Ability Test (SCAT) varied considerably according to grade level. The mean score of the students in the seventh and eighth grades indicates that these one hundred students were well above average in verbal ability, their mean score being equivalent to a position between the 82nd and 93rd percentiles for eighth grade SCAT norms.

The majority of all students were in the ninth grade, and their mean score was somewhat above average, being equivalent to a position between the 53rd and 71st percentiles for ninth grade SCAT norms. The tenth and

eleventh graders were somewhat below average in verbal ability. The mean score of tenth graders according to tenth grade norms was between the 38th and 57th percentiles. The mean score of eleventh graders according to eleventh grade norms was between the 34th and 61st percentiles. The twelfth grade students were slightly above average in verbal ability, their mean score being equivalent to a position between the 45th and 63rd percentiles.

The results of the verbal section of SCAT can be summarized as follows:

Grade	Number of students	Percentile rank according to appropriate grade norms
7 or 8	103	82-93
9	1,717	53-71
10	690	38-57
11	193	34-61
12	319	45-63

F. Description of the Unit

The Inside the City unit was prepared under the direction of Dr. Arthur Getis of Rutgers University and Judith Getis. At present the unit is expected to follow an Introduction to Geography unit and to precede the Networks of Cities unit.

The version of the Inside the City unit used in the 1966 trial was intended to require between eighteen and twenty-four school class periods. Almost all teachers taught the unit within this suggested time period, the average number of days spent on the unit being nineteen. The unit was divided into four parts, each designed to teach certain concepts of urban geography. Each part was divided into several activities, with a total of twenty activities in the entire unit. "Activities" is defined to include all the identifiable and distinguishable educational experiences planned for

the unit, including class discussions, individual and group projects, films, and guest speakers. Some activities were optional, but most were considered essential in order to achieve the objectives of the unit. Each activity was designed to introduce or reinforce the learning of one or more basic concepts of the unit.

The teacher was provided with guidelines which described the objectives of the unit. Each part of the unit was described in terms of the major concepts to be taught. Each activity was then described in terms of the materials needed, a suggested procedure to be followed in class, answers to questions in the student materials, and answers to points that might be raised by students in class. Teachers were also given two quizzes to administer during the unit, if desired, in addition to the unit test used in the evaluation, as well as a list of suggested readings for background material.

Each student was provided with a manual of exercises and readings. The readings were intended either to reinforce concepts already learned or to form the basis for a written or oral discussion in class.

TEST RESULTS AND GENERAL IMPRESSIONS OF THE UNIT

A. Results of the Unit Test

The following test results are based on the forty-five question unit test administered at the end of the Inside the City unit. These are compared with the results of the identical questions which were given before the unit began. A copy of the test appears in Appendix D.

The unit test of forty-five questions was designed to measure an understanding of the basic concepts taught in the unit. The unit test mean score was 26.24 and the standard deviation was 7.4. Reliability was .847. On the average, each of the forty-five questions pertaining to this unit was answered correctly on the pretest by 42% of the students, while on the unit test each question was answered correctly by 59% of the students. Thus, from the pretest to the unit test there was a mean increase of 17% in the number of students answering the questions correctly. Approximately seventy-five percent of the teachers felt that the unit test adequately measured the content of the unit as they had taught it. Those who said that the test did not measure the unit identified difficult vocabulary and emphasis on specific rather than conceptual information as the greatest problems.

B. General Impressions of the Unit

The following observations about the Inside the City unit are based on the questionnaire filled out by teachers and students. Student impressions are based on a twenty percent random sample (480) of student forms. From

this sample, two additional groups, those who scored in the upper and lower quintiles on the verbal aptitude test, were isolated for comparison with the total sample.

Teacher impressions are based on the responses of sixty-one teachers who completed the Teacher Unit Evaluation Form.

1. The Unit as a Whole

In general, both teachers and students were very favorably impressed by the unit. Teachers felt that the unit dealt with information which was of great interest to their students and that the variety of activities helped to maintain a high level of student interest. Many teachers commented that the greatest strength of the unit was its timeliness and relevance to the lives of the students. A great many others felt that the greatest strength was its success in motivating and interesting a large proportion of the students for an extended period of time, particularly the Portsville activities. All but five of the teachers responding felt that the subject matter in the unit was not too complicated for the majority of the students, and all but two teachers indicated that the subject matter was well-organized and enabled the students to apply the knowledge they had learned. However, eight teachers did suggest that the subject matter was too simple for their students. They felt that this led to some boredom in the classroom. These teachers taught classes whose mean verbal ability score on SCAT was above the average for their grade level. However, in only one of these eight classes did the mean score on the unit test greatly exceed the mean for the total trial group.

The primary problem encountered by the teachers was the insufficient amount of time allowed to teach the unit. Twenty-five percent of the teachers found the time schedule constraining. Since only one of the teachers who had previously taught the unit mentioned any time problem, the problem may be one of teacher unfamiliarity with the material.

Almost 90% of the students thought that the unit as a whole was either generally or extremely interesting. Students who scored in the lowest quintile on the verbal aptitude test indicated somewhat less interest in the unit (80% said it was interesting) than the other students.

2. The Student Reading Materials

Approximately two-thirds of all students thought that the readings in their student manual were either generally or extremely interesting. Students whose verbal ability scores were in the lowest quintile indicated only slightly less interest in the readings than the other students. The interest in readings expressed by the students becomes striking when compared with the generally unfavorable reactions of students to the readings in previous trials of this unit. This comparison can be only a subjective one, since there were different students in previous trials. However, it is fair to say that the reading material in this trial contributed to student interest in the unit.

Teachers tended to confirm the reactions of their students to the reading materials. Every teacher believed the readings to be clearly written and understandable for the above average students, and approximately ninety percent felt that they were fine for the average students. Teachers were equally divided as to their feelings about the appropriateness of the readings for the below average students in their classes. Eighty-five percent of the teachers agreed that the readings were well-organized from an instructor's point of view. Both teacher and student comments clearly indicate that the readings in the unit were well received. Consideration should be given to including similar readings in other units.

The primary problem encountered by most teachers was the lack of student readings at certain portions of the unit. Sixty-five percent of the teachers felt that there should be more readings in the unit, and a majority

of these strongly urged that students be given the narrative of Portsville's growth, or at the very least reference guides or background information about the city. Most of the teachers who felt there should be more readings in the student manual suggested including more of the material that appears in the teacher's guidelines in the student text. Only two teachers thought there should be less student reading in the unit.

3. Teacher's Guidelines

The teacher's guidelines were judged by teachers as extremely helpful in meeting their professional needs. All but two teachers found it extremely or generally helpful in clarifying the objectives of the unit, and all but six teachers found it helpful in suggesting a variety of learning activities. About one-fifth of the teachers did find the guidelines somewhat inadequate in providing needed geographical background, but most of these noted that they just did not have the time to locate and make use of the suggested reference books. Guidelines that devote more time to background information would alleviate this deficiency. Almost half of the teachers thought that the guide was inadequate in suggesting supplementary reading materials for the students. Because many of these teachers felt that the readings in the student materials were also somewhat inadequate, the need for more required or optional student readings is indicated. Over one-third of the teachers felt that the guidelines were also inadequate in providing guides for continuous evaluation of student progress. Several teachers suggested that the guidelines include a quiz at the end of each part of the unit similar to those at the end of Parts II and III, possibly to provide a check on students' understanding of new vocabulary. In general, the quizzes provided were very well received.

SUGGESTIONS FOR REVISING THE UNIT

The Inside the City unit is divided into four parts, and each part is designed to develop an understanding of several of the unit's concepts. By relating each test question to one or more of the concepts, and thereby relating it to one of the parts of the unit, an analysis of the extent to which students understand the concepts, as well as the extent to which each part contributes to this understanding, is possible. The evaluation of each part will include a statement of the concepts it hoped to teach, results of the test questions pertaining to that part, and discussion of the activities included in the part. Test results will be reported in terms of the percent of students who correctly answered each question on the pretest versus the percent of these same students who correctly answered it on the unit test.

The discussions of the activities will include general observations made by the teachers and unit evaluators with respect to the following: (a) whether the student and teacher directions were clear; (b) whether the activity was effective in stimulating the interest of the students; (c) whether the activity was effective in helping the students learn what was intended; (d) whether the activity should be retained in the unit with or without revision, or whether it should be eliminated. These judgments will be followed by specific suggestions for revising the activities, based on (1) the results of those questions which test the students' understanding of the concepts to be taught by the activity, (2) teacher and student impressions and comments, and (3) the opinions of the evaluators of the unit. The number of teachers who made a suggestion is given after each suggestion. All other suggestions are summary statements by the writer of this report.

Part I of the Unit: The Locations of Settlements

Part I is designed to develop an understanding of the following concepts:

A. Some sites are better than others for settlement. Attractive characteristics of favorable sites are

1. conditions conclusive to health, safety, and comfort
2. accessibility to transportation facilities
3. accessibility to natural resources

B. Favorable locational characteristics change over a period of time.

The unit test contained six questions designed to measure the students' understanding of these concepts. The results of these questions and the concepts to which they are related are:

Question	Concept Tested	Pretest (% of Students Answering Correctly)	Posttest (% of Students Answering Correctly)	Increase in % of Students Answering Correctly
1	A	33	38	5
2	A	41	63	22
25	A	71	74	3
3	A, B	60	76	16
24	B	40	50	10
26	B	58	81	23
		M 51%	M 64%	M 13%

An average of fifty-one percent of the students correctly answered each of the six questions on the pretest (as compared with forty-two percent for all questions). On the posttest, each question was correctly answered by an average of sixty-four percent of these same students (as compared with fifty-nine percent for all questions). Thus, from the pretest to the posttest there was a mean increase of thirteen percent in the number of students correctly answering the questions related to Part I (as compared with a mean increase of seventeen percent for all questions).

In general, students seemed to understand the basic concepts taught in Part I of the unit. Specific suggestions for revising the unit based on these test results are discussed under the activity to which they relate.

Activity 1: Site Diagrams (sixty-two teachers reporting)

Activity 1 is a discussion centered around five diagrams for which students are instructed to indicate the site at which a settlement would have been most likely to develop in the year indicated. This activity introduces the two concepts of Part I.

Approximately ninety percent of the teachers found the teacher's guidelines and student materials clear. All but one teacher thought that the activity was effective in stimulating student interest and in helping students learn what was intended. Approximately eighty percent of the students thought that the activity was interesting, with students in the lower quintile on SCAT indicating somewhat less interest. About seventy percent of the teachers suggested retaining the activity without revision, and the others would retain it with some of the revisions suggested below.

The most difficult part of the activity for the students was identified by twenty-four of the teachers as the drawing of the "This Year" diagram.

1. Include a scale of miles for the 1910 diagram. (6)
2. Include a very brief history of the areas for each year depicted so that students are able to base their decisions on fact. (6)
3. Enlarge the area of the "This Year" diagram to a full page and eliminate the scale to allow students more freedom in their drawing. (5)
4. Include more diagrams for the students to do as homework. (3)
5. Identify site "C" on the 1800 diagram more clearly. (1)
6. We suggest including in the student materials a brief description of the factors that influence present-day locations of suburbs. The difficulty many students encountered in drawing the "This Year"

diagram was partially caused by their unfamiliarity with these site factors. The results of question 1, which deals directly with these factors, indicates a need for additional emphasis in this area.

Activity 2: General Discussion of City Sites with a Special Focus on the Local Community (fifty-nine teachers reporting)

Activity 2 is a teacher-led discussion of the location of urban cities and the characteristics of these locations. It emphasizes the site characteristics of the students' home town and factors that have influenced the site over time.

Ninety percent of the teachers thought that the directions in the teacher's guidelines were clear. Although there were no student materials supplied for this activity, many teachers suggested that students be given material to read and problems to solve related to this topic. Approximately eighty percent of the teachers found the activity effective in stimulating interest and in helping students learn. Seventy percent of the teachers suggested retaining the activity without revision, and all but one other teacher would retain it with some revision.

1. Provide students with desk maps of the United States (10) and with reading material about the cities to be discussed in class. (5)
2. Nine teachers had difficulty locating information about their local community. The teacher's guidelines might suggest possible sources for locating such material.

Activity 3: Readings in Student Manual, Part I (sixty teachers reporting)

Activity 3 includes a student reading about the location of settlements, a set of city site maps to be matched with descriptions of factors which influenced their location, and a student reading about the selection of a site for Jamestown, Virginia.

Approximately ninety percent of the teachers thought the directions in the student materials and teacher's guidelines were clear. About eighty-five percent thought the activity was effective in stimulating student interest, and about ninety percent thought it was effective in helping students learn what was intended. About sixty-five percent of the teachers suggested retaining the activity without revision, and the others would make certain revisions in the activity. Approximately two-thirds of the students thought that the activity was either extremely or generally interesting, and there was somewhat more interest in the matching cities and their descriptions than in the Jamestown selection.

1. Number the maps in Section B so that they may be identified in class. (2)
2. Clarify the date of Chicago's settlement. The description says growth began in 1848, but that Chicago became a city in 1837. It is not clear when the city was first settled. (4)
3. Since teachers questioned the date of Atlanta's settlement, an explanation for the teachers of the reasons for this date seems necessary. (4)
4. Clarify the differences between Fresno and Atlanta so that the students are able to select the proper map on the basis of the descriptions. All the descriptions should be expanded so that students can make wise selections. (2)
5. In the student manual, question 2 on page 11 was confusing for some students and needs to be made more specific. (5)
6. Define for the students what is meant by site factors and characteristics of sites. (3)
7. Identify the lake in the map of Chicago. (1)
8. Explain the lines of city limits as well as the central business district. (1)

9. Place the city maps in the student manual opposite the descriptions of the cities and provide some directions for the students, possibly by placing the questions before the maps.
10. An additional exercise might be a comparison of the city maps with the site diagrams of activity 1, so that students can see the relationship between the theoretical sites and actual sites. This would also serve as a review of the concepts learned in Part I of the unit. This might also help students in arriving at the conclusions asked for in question 2 on page 11.
11. Emphasize the specific characteristics of the site of Levittown. The results of question 1, with only thirty-eight percent of the students on the unit test correctly identifying the probable site of a suburban area in the 1960's indicates the need to emphasize this point.
12. Emphasize the way in which favorable locational characteristics change over time. Results of question 24 indicate that many students do not understand how these characteristics have changed, although results from question 26 indicate that most students realize that site characteristics change.

Part II of the Unit: Accessibility and Land Use Patterns

Part II is designed to develop an understanding of the following concepts:

A. Urban land users with different interests want to be accessible to different things.
B. Time-distance is a useful way to measure ease of access.
C. Commercial land values tend to be high at very accessible spots.
D. Different kinds of retail stores display different locational characteristics.

E. Residential densities decrease as distance from the central business district increases.

F. Median family income, residential density, and distance from the central business district are associated.

The unit test contained twenty-two questions designed to measure the students' understanding of these concepts. The results of the questions and the concepts to which they are related are:

Question #	Concept	Pretest (% of Students Answering Correctly)	Posttest (% of Students Answering Correctly)	Increase in % of Students Answering Correctly
4	A	59	73	14
27	A	43	52	9
5	B	41	69	28
6	B	43	57	14
28	B	43	77	34
29	B	13	32	19
7	C	59	76	17
8	C	14	26	12
30	C	36	42	6
9	D	64	82	18
10	D	32	62	30
31	D	59	79	20
32	D	42	65	23
11	E	21	59	38
12	E	24	50	26
33	E	80	86	6
34	E	16	32	16
13	F	29	57	28
14	F	23	57	34
35	F	20	66	46
36	F	30	72	42
37	F	43	56	13
		M 38%	M 60%	M 22%

An average of thirty-eight percent of the students correctly answered each of the twenty-two questions on the pretest (as compared with forty-two percent for all questions). On the unit test, each question was answered correctly by an average of sixty percent of these same students (as compared with fifty-nine percent for all questions). Thus, from the pretest to the unit test there was a mean increase of twenty-two percent in the number of students correctly answering the questions related to Part II (as compared with seventeen percent for all questions).

Activity 4: Discussion about Accessibility (sixty teachers reporting)

Activity 4 is a discussion about the meaning of the word accessibility. It is related to Concept A, which was tested by questions 4 and 27 in the unit test.

Approximately ninety percent of the teachers found the directions in the guidelines clear. Over ninety percent thought that the activity was effective in helping students learn what was intended, and almost as many thought it effective in stimulating student interest. Three-fourths of the teachers would retain the activity without revision, one teacher would eliminate it, and the others would retain it with some revisions.

The greatest problem of many students was in defining and measuring nearness. Suggestions for clarifying this concept included:

1. Use the example of bicycle time. (1)
2. Include explanations of accessibility in the students' manual. (4)

Activity 5: Time-Distance Exercise (sixty-two teachers reporting)

Activity 5 is an exercise in which students compute time-distance in order to determine accessibility. The activity is specifically related to Concept B. There were four questions on the unit test that measured an understanding of Concept B, and the results indicate that this activity has effectively taught many of the students the relationship of time-distance to accessibility.

The results of question 28 indicate that over three-fourths of the students know that time-distance is a measure of accessibility. Over two-thirds of the students were able to determine the most accessible spot when given a map similar to the ones used in this activity. Fewer students were able to determine the least accessible spot, and this point might need emphasis in the unit. Question 29 shows a substantial increase from pretest to unit test, but over two-thirds of the students did not answer it correctly. The question measured the quantities used to measure time-distance, and the poor results may be a result of the students' confusing or misreading number of miles between points with number of minutes to travel between points. This may be the fault of the test question, and it is difficult to state whether or not the unit needs revision at this point.

About ninety percent of the teachers thought the teacher's directions clear, but almost one-third thought the student materials needed clarification. Approximately eighty-five percent thought the activity stimulated student interest and helped the student learn what was intended. All teachers suggested retaining the activity, although about one-fourth of them would revise parts of it.

Approximately two-thirds of the students found the activity generally or extremely interesting. However, about one-third of the students found it to be the least interesting activity in the unit, and as many also found it to be the most difficult. This was confirmed by approximately one-third of the teachers who mentioned the difficulty of the accessibility tables and the math computation for their students. However, the test results indicate that most students learned the concepts despite the difficulty of the activity.

Suggestions for revising the activity:

1. Complete the accessibility table for Map 2 (page 35 of the guide) for the teacher. (4)
2. Include the aerial photographs in the teacher's guidelines. Make them larger, as it is extremely difficult to locate places mentioned in the article. (7)
3. On Map 1: place a bridge over the river between Points B and E; indicate the population at Point A; indicate that the scale is in miles. (20)
4. Include directions for completing the tables in the students' manual so students can complete it for homework and will have the directions to review. (5)
5. Mention that Map 2 is the same area as Map 1 with the addition of a freeway. (1)
6. Clarify what is meant by "areas" in question 3, as students answered both in terms of lettered points and roads. (2)
7. Students require a definition of the central business district before they can answer question 1. (2)
8. Since many students wanted to know why they were completing the table, the activity could be posed as a problem, possibly by asking where would be the best place to locate a store. In this way the activity would also relate to other activities in the unit. (2)
9. Include questions and information in the teacher's guide about the aerial photographs. Because many students had never been exposed to these before, a more structured activity is needed. Allow students to locate the changes in the photographs themselves. (8)
10. It would be easier to compute the totals for the tables if the "From" column were on the left and the "To" column were on top. (2)

Activity 6: The Relationship of Accessibility to Commercial Land Values (sixty-one teachers reporting)

Activity 6 is a lecture-discussion about the effects of accessibility on commercial land values. It also introduces the students to various kinds of stores, based on accessibility to different customers. The activity is specifically related to Concepts C and D. There were three questions on the unit test that measured an understanding of Concept C, and there were four questions related to Concept D. The results indicate that this activity has very effectively taught most students Concept D. The mean percent increase from pretest to unit test for each of the four questions of Concept D was twenty-three percent, with a mean of seventy-two percent of the students answering each question correctly.

However, the results of the three questions (#7, 8, and 30) related to Concept C, that commercial land values tend to be high at very accessible spots, indicate that students need more work in this area. An average of only forty-eight percent of the students answered each of the three questions correctly on the unit test, a mean increase of only twelve percent from the pretest.

Question 7 shows that three-fourths of the students understood that high land value is associated with concentrated land use. However, question 30 indicates that only forty-two percent of the students saw that the opposite was true, that high land value is not associated with single family residences. However, since over one-third of the students chose automobile salesrooms, a land use that is also associated with relatively low land values, the problem may be one of degree. The results of question 8 indicate that most students were unable to interpret a graph that illustrated the change that has taken place in land value and accessibility relations in the past forty years.

All but two teachers thought that the directions in the teacher's guidelines were clear. Approximately ninety percent of the teachers thought the activity was effective in stimulating student interest and in helping students learn. Two-thirds of the teachers would retain the activity without revision, one teacher would eliminate it, and all others would make certain changes.

About seventy percent of the students found the activity either extremely or generally interesting, with somewhat greater interest expressed by low ability students, and somewhat less interest by high ability students.

About one-fourth of the teachers expressed concern over the trouble students seemed to have with the various types of stores, but test results indicate better than average results in this area.

1. Many teachers suggested that students be given readings to reinforce the class discussion, and this would also help students who have trouble initially.
2. Above average ability students expressed more disinterest in the activity than others, and this was confirmed by teacher comments. More complicated situations, possibly by adding more salesmen, could help this problem.
3. Many students felt that the examples of the popcorn vendor and parade were too juvenile and resented being "talked down to." One teacher used an example of a "pot party," and he got wonderful enthusiasm. Although this may seem somewhat extreme, examples more in line with teenagers of today, and the stores they frequent, should increase student interest.
4. About ten teachers had difficulty classifying some of the student suggestions that did not fit the specific definitions, and additional help for the teacher in this situation is needed. The teacher should be reminded to emphasize that categorization is limited in its possibilities and that overlapping in categorization often occurs.

5. The results of questions related to Concept C indicate a need for more emphasis on the relationship between commercial land values and accessibility. The inclusion of a graph showing the relationship of land values to distance from the central business district, similar to the graph in question 8, could help students visualize this concept.

Activity 7: Readings in Student Manual--Part II (fifty-eight teachers reporting)

Activity 7 includes an exercise on patterns of commercial location and a reading that summarizes the material relevant to Concepts A, B, and C of Part II.

Almost ninety percent of the teachers felt that the directions in the guidelines were clear, and all but two teachers thought directions in the student manual were clear. Approximately seventy percent of the teachers thought that the activity was effective in stimulating student interest and in helping students learn what was intended. All but one teacher suggested retaining the activity, sixty percent without revision, the others with some revisions. Almost two-thirds of the students found the exercise on store locations extremely or very interesting.

1. Label the rows of maps on page 31, as well as explaining them on page 29. (3)
2. Complete the scale for the map of Lansing. (5)
3. Include this activity, with suggested answers to the questions, in the teacher's guide. (7)
4. Label the entire set of maps as the Central Business Districts of Cities, since many students thought of the maps as the entire cities. (4)

5. Label Section B a student reading or Summary, since students were unsure of what was expected of them. (1)
6. Supply questions after the readings as a review of the concepts and to force students to verbalize what they learn. (2)
7. Question 3 should be reworded and clarified since many below average students had difficulty with it. (2)
8. Several teachers commented that students had difficulty understanding question 5 and reading the map of Lansing. This should be explained in the teacher's guidelines or in the student manual itself.

Activity 8: Residential Density, North Chicago (sixty teachers reporting)

Activity 8 introduces the concept of residential density as the number of people per acre living on residential land. It includes questions based on a graph showing the relationship between residential density and distance from the central business district.

This activity is related to Concept E, that residential densities decrease as distance from the CBD increases. There were four questions in the unit test related to this concept. On the pretest eighty percent of the students were able to compute the number of people per residential acre, so it appears unnecessary to go into any detail about this method of computing. Although sixty percent of the students could define residential land on the unit test, almost one-third of the students thought residential land included streets, and additional emphasis here might be warranted. The results of questions 12 and 34, both of which required the students to read graphs representing residential density, indicate a need for more work in this area. In question 12, almost one-third of the students identified a graph which was the exact opposite of the correct one, and this indicates either a need for more work on the concept, or more probably, additional emphasis on reading and interpreting graphs. About one-third of the teachers felt this lack

in their students and asked for more time and more help to teach basic graph skills. The results of question 34 also indicate the need for this additional graph work. However, the question itself may account for the poor response since the lines on the graph were not identified as representing 1900 or 1960.

Ninety percent of the teachers felt that the directions for the activity were clear. Eighty percent felt that the activity effectively stimulated student interest, and over ninety percent felt it was effective in helping students learn. All teachers suggested retaining the activity in the unit, and about half suggested some revisions.

1. The answer to question 5 on page 60 of the guidelines should be 1,000, according to the definition of city block on page 56. (1)
2. Ten teachers suggested that the answers to the questions be eliminated from the students' manual, or at the very least put on another page of the manual. Many students felt it unnecessary to answer the questions when they were given the answers. (10)
3. Since North Chicago is the name of a city, the area should be called the north side of Chicago. (1)
4. Students should be allowed to plot residential density on the graphs themselves, to give them more practice in working with graphs. (2)
5. Questions 9 and 10 could be made essay questions for homework, so that the student could formulate the concepts on his own. (3)

Activity 9: Exercise on Median Family Income (fifty-nine teachers reporting)

Activity 9 is a discussion and exercise on the relationship of median family income to distance from the central business district and the relationship between income and residential density.

The activity is related to Concept F, that median family income, residential density, and distance from the CBD are associated. There were five

questions on the unit test related to this concept. Results of these five questions indicate that the activity has effectively taught the concept to many of the students. There was a mean increase of thirty-three percent in the number of students answering each of the five questions correctly from the pretest to the unit test, with a mean of sixty-two percent of the students answering each question correctly on the unit test.

Over ninety percent of the teachers thought that the directions in the guidelines were clear, and approximately eighty percent thought that the student directions were clear. Over eighty percent felt that the activity was effective in stimulating student interest and in helping students to learn what was intended. All of the teachers would retain the activity, and about two-thirds of the teachers would retain it without revision.

About two-thirds of the students found the activity either extremely or generally interesting, with above average ability students expressing more interest than the others. The students found it to be one of the more difficult activities in the unit, primarily because of the graph work.

1. Although the test results were above average for this activity, almost half of the students were unable to select the median number from a group of five numbers in question 13. Since the activity depends on student understanding of median, more time should be spent reviewing this term.
2. Students often confused the Point Numbers (1-10) with distance from the CBD. Letter the points A-J to avoid confusion. (5)
3. On the graph (page 73 of the guidelines) the vertical axis repeats 200 and 250 people per residential acre.
4. Put the table opposite the graph in the student manual for ease in plotting, and repeat the directions for completing the graph. (3)

5. Recording the median family incomes on the map was time consuming and students felt this should have been done for them. (5)
6. Eliminate answers to the questions from the student manual, or put them on a different page. (10)

Activity 10: Map Study in Student Manual (fifty-nine teachers reporting)

Activity 10 is the last activity in Part II and consists of a study of five maps relating areas of high and low income families and a city's central business district. Class discussion is based on questions about the maps. This activity emphasizes the relationship between median family income and distance from the CBD.

Almost all teachers felt that the directions in the guidelines were clear, and eighty percent felt student directions were clear. Almost three-fourths of the teachers thought that the activity was effective in stimulating student interest, and eighty percent felt that it was effective in helping students learn. One teacher suggested eliminating the activity from the unit, but more than half would retain it without revision and the others would make certain revisions in it. Approximately two-thirds of the students found the activity either extremely or generally interesting.

1. Direct the students to answer the questions on page 57 of their manual as true or false statements. (10)
2. Place the maps directly opposite the True--False questions. (2)
3. The maps of the cities were unclear to many students, primarily because they could not easily identify the areas where median family income was less than $5,000 a year. These areas should be marked so that they can be distinguished from the rest of the city. (15)
4. The students of one class were given the article by Hoyt mentioned in the guidelines and were able to understand it. This might be

suggested as an optional activity for above average ability students. (1)

5. Many students wanted more information on the reasons for the location of low and high income areas in the five cities. The activity might include a discussion of this, perhaps oriented towards a city near the students' home town.

Part III of the Unit: The Growth of Cities

Part III is designed to develop an understanding of the following concepts:

A. Cities prosper when money is brought into the city by selling goods and services to people in other areas.

B. Cities grow through an increase in the number of employment opportunities.

C. Accessibility and growth are related. The more accessible a city, the better are its chances for growth.

D. Certain typical urban land use patterns have evolved in Northern America because of factors associated with the notion of accessibility.

The unit test contained fourteen questions designed to measure the students' understanding of these concepts. The results of the questions and the concepts to which they are related are:

(See table on following page)

Question #	Concept	Pretest (% of Students Answering Correctly)	Posttest (% of Students Answering Correctly)	Increase in % of Students Answering Correctly
15	A	70	80	10
16	A	47	66	19
38	A	10	32	22
39	A	32	58	26
17	B	71	70	-1
18	B	61	67	6
40	B	24	34	10
19	C	26	51	25
20	C	14	10	-4
41	C	67	77	10
21	D	33	52	19
22	D	35	52	17
42	D	62	81	19
43	D	58	74	16
		M 44%	M 58%	M 14%

An average of forty-four percent of the students correctly answered each of the fourteen questions on the pretest (as compared with forty-two percent for all questions). On the unit test, each question was correctly answered by an average of fifty-eight percent of these same students (as compared with fifty-nine percent for all questions). Thus, from the pretest to the posttest, there was a mean increase of fourteen percent in the number of students correctly answering the questions related to Part III of the unit (as compared with seventeen percent for all questions).

The smaller than average gain on these questions is primarily due to the decrease from pretest to unit test on questions 17 and 20. Since question 17 was answered correctly by seventy-one percent of the students on the pretest, a large increase cannot be expected. The results on question 20 may be partially due to the students misinterpreting the diagram. The

symbol used for the overpass had been used in the unit to represent a bridge. Students very likely thought that Site Y was accessible to people traveling on the freeway when it was intended that Site Y be inaccessible from the freeway. If this were the case, Site Y, chosen by half of the students, would have been the least accessible site. Without these two questions, the mean increase would have been about seventeen percent, the same as the mean increase for all questions in the test.

Although the activities in Part III are closely related to each other and build on concepts, test questions will be discussed in terms of the activities to which they are most directly related.

Five of the six activities in Part III were devoted to the building of a city called Portsville (actually Seattle, Washington). Each teacher was given one or more three-dimensional maps of Portsville, with plastic pieces representing land uses at different time periods in the city's history. Students constructed a city according to a teacher narrative of the city's history. The building of Portsville by the students is designed to teach the concepts of Part III and also to reinforce the concepts of Parts I and II.

Many suggestions made by the teachers were directed toward the revision of the entire Part rather than toward one activity. The following suggestions are for all of the Portsville activities and were made by ten or more teachers.

1. Students should be given the Portsville narrative. They were interested in the activities but wanted the information to refer to.
2. Give the students a copy of page 97 in the guidelines.
3. There should be more than one Portsville map for each class. Teachers who used one map for a maximum of ten students reported much more student interest than teachers who used one map for an entire class.

4. Provide the teacher with much more background information about Seattle. The narrative is fine for students, but the teacher needs more background for an activity that lasts a full week. One teacher suggested an article in the April, 1960 National Observer, pages 494-514, as a good account of Seattle's settlement.
5. Improve the quality of the slides. Teachers had trouble getting a projector for a whole week, and photographs that the students could periodically refer to might be more useful, or a helpful addition to the slides.
6. Provide teachers with a picture of what the completed Portsville should look like.
7. Students who are not actively involved in building Portsville must be given something to do. When there was more than one Portsville map, the problem was slight, but when there was only one map students readily lost interest, especially near the end.
8. Make sure Portsville boards are in good condition before shipping. At least ten teachers complained of warped boards and missing pieces.
9. Mark the bags of plastic pieces.

Students were also asked to give their opinions on the entire Portsville sequence. Their reactions were extremely favorable. About ninety percent of the students thought that the Portsville activities were either extremely or generally interesting. Students scoring in the low quintile of SCAT indicated somewhat less interest than the others. Fewer than one percent of all students found these activities dull. Almost two-thirds of the students who scored in the highest quintile on SCAT found these activities the most interesting in the unit, and about half of all students found it the most interesting. More than one-third of the students thought that Portsville had taught them more than any other activity. It was found to be the least interesting activity by only four percent of the students.

Activity 11: Determining the Site of Portsville (fifty-one teachers reporting)

Activity 11 is a discussion of the area represented on the map by which students are led to identify the site at which Portsville was first settled.

This activity uses concepts learned in previous activities so that students can determine the most probable settlement site. Since its purpose is primarily to introduce Portsville to the students, there were no test questions related to it.

Almost ninety percent of the teachers felt that the directions for the activity were clear. Over ninety percent found it effective in stimulating student interest, and almost as many found the activities effective in helping students learn what was intended. All teachers would retain the activity, two-thirds of whom would retain it without revision.

1. Supply students with readings about the area, with information about the activity's mechanics and with an outline map of the area. (6)
2. Many students were confused by the directions of Portsville. Since they are accustomed to seeing North on top, some mention of this, and if needed some explanation, should be required by the teacher. (7)
3. Teachers and students occasionally had trouble reasoning the site choices, with so little information given. (7)
4. Make tidelands a different color so it can be distinguished from the bay. (1)

Activity 12: Portsville 1851-1880 (fifty-five teachers reporting)

Activity 12 includes a discussion of Portsville from 1851 to 1880 with slides, an explanation of various categories of land use, and the assembly and discussion of the map.

None of the questions was specifically related to this activity, which served to reinforce concepts taught in previous activities and set the stage for the remaining Portsville activities.

Approximately eighty percent of the teachers thought that the directions were clear. Over ninety percent thought the activity was effective in stimulating student interest and almost as many thought it effective in helping students learn. All of the teachers would keep the activity in the unit, but almost half of the teachers would make some revision.

The primary difficulty encountered by many teachers was occupying those students who were not actively building Portsville. This was a recurring criticism of this group of activities. Some teachers also mentioned that students had difficulty applying the concepts they had learned in Parts I and II of the unit. However, this may be the fault of the teacher rather than the unit, since the text seems to adequately refer to previous concepts and builds on those concepts.

1. Many students had trouble visualizing the studs used to build Portsville as blocks rather than individual houses or stores. This point could be emphasized in the teacher's guide, or preferably in the student manual. (6)
2. A fuller description of the slides is needed. Teachers had difficulty relating the slides to the narrative and requested additional information. (4)
3. Several teachers remarked that their students had wondered about roads in Portsville. A fuller explanation of this would be useful. (3)
4. One teacher who had taught the unit in last year's trials changed the routine by presenting the entire narrative on the first day and then letting the students build the city. In this way, students were familiar with the city and knew what to expect and how to build.

Activity 13: Portsville: 1881 to 1890 (fifty-five teachers reporting)

Activity 13 includes a discussion of Portsville from 1881 to 1900, with emphasis on Concepts A, B, and C of Part III. The students continue building Portsville, and the activity concludes with a discussion of the assembled map.

Four questions on the unit test were related to this activity and more specifically, to Concept C. Question 41 was answered correctly by approximately two-thirds of the students on the pretest, and the ten percent increase in the number of students answering it correctly on the unit test indicates that students are aware of certain aspects of city growth. In question 19, fifty percent of the students identified the most accessible point on a map as the area that had the best chances for growth. Question 20 has already been discussed. The question will be revised. The results to question 40 are puzzling and more difficult to interpret. On the unit test, only one-third of the students identified trade as being most important for the growth of a city. About one-third of the students selected a favorable site for industry as the most important factor. One possible explanation is the emphasis placed on the location of industry and the reasons for the locations in Portsville. Since this is one of the fundamental concepts of the unit, and certainly of the Portsville activities, it appears that this point should receive much additional emphasis. It is also an indication that teachers must be made aware that the concepts taught in Part III need to be stressed.

Over eighty percent of the teachers felt that the teacher's directions were clear. About eighty-five percent felt that the activity was effective in stimulating student interest and in helping students learn. One teacher would eliminate the activity, and the others would retain it, with about half of the teachers recommending certain changes.

1. The directions on placing the railroad pieces were inadequate for several teachers. They were unsure about replacing pieces that the railroad removed, and they were confused about the railroad's location. (3)
2. On the basis of test results the concepts introduced in this activity need to be stressed. Five of the teachers commented that their students had begun to view Portsville as a game rather than as a way of learning. Perhaps Portsville should end at 1890 to leave more class time for review of the concepts.

Activity 14: Readings About City Growth, Part III (fifty-two teachers reporting)

Activity 14 consists of a class discussion of three readings in the student materials. The readings emphasize certain concepts introduced by the Portsville activities, and discuss the terms: basic worker and basic industry.

There were six questions on the unit test that were related to points made in one of these three articles, although all but one of the questions dealt with concepts introduced in the Portsville activities. This one question (#38) required knowledge of basic industry, and it was answered correctly on the unit test by only thirty-two percent of the students. This concept must be emphasized in discussions of Portsville. The other questions were related to Concepts A and B. Each was answered correctly on the unit test by more than half of the students, with a mean of sixty-eight percent of the students answering each correctly.

Four of the questions showed a substantial increase from pretest to unit test. Questions 17 and 18 are both related to Concept B and they showed negligible increases partially because they were answered correctly on the

pretest by seventy-one percent and sixty-one percent of the students respectively. Question 17 is most directly related to Concept B, and almost three-fourths of the students could attribute city growth to increased employment opportunities before exposure to the unit. Therefore, this concept does not need to be stressed in the unit.

Approximately ninety percent of the teachers thought that the directions in the guidelines and student materials were clear. About two-thirds of the teachers thought that the activity was effective in stimulating student interest and in helping students learn what was intended. Some forty percent of the teachers would retain the activity without revision, fifty-five percent would make some revisions, and three teachers would eliminate it. This relatively negative judgment by the teachers can be attributed more to the placement of the activity than to its content. Many teachers mentioned that their students wanted to return to Portsville and were annoyed that a day had to be "wasted" by this activity. We feel that the students need this written information and that the activity should be retained, but it should be placed either before or immediately after the Portsville sequence.

1. Place the activity either before or after the Portsville activities, and leave the Portsville sequence as a unified whole. (1)
2. Include questions on the readings to force students to verbalize the concepts. (5)
3. Place more emphasis on the basic worker-basic industry concept. (2)

Activity 15: Portsville 1891-1900 (fifty-four teachers reporting)

Activity 15 continues the Portsville activities, and the students build Portsville through 1900 with the aid of the narrative and slides. A discussion follows in which many of the concepts learned in previous activities are reviewed. The students are led to understand Concept D, that certain typical patterns of land use have evolved in Portsville, and in many North American communities, because of the factors associated with accessibility.

There are four questions in the unit test that are related to Concept D, and therefore to this activity. Each question was answered correctly on the unit test by over fifty percent of the students, and the mean increase from the pretest was eighteen percent. Most students were familiar with certain land use patterns.

Approximately eighty percent of the teachers felt that the directions for the activity were clear. Eighty-five percent thought that the activity was effective in stimulating student interest and over ninety percent felt it was effective in helping students to learn. All teachers would retain the activity in the unit, but about fifty-five percent of the teachers suggested making some revisions.

1. Include more information about placing the railroad. Several teachers were uncertain as to its location.
2. Include a map showing where the teacher is to place the land fill area. Several teachers did not receive pins to attach it, and others commented that it kept falling off.
3. Two teachers were missing the 1900 date card.
4. Relate this activity to the concepts more directly. Many students still did not know why they were building the city. (3)

Activity 16: Discussion of Map of Seattle (forty-nine teachers reporting)

Activity 16 is not essential to the unit, but it serves to satisfy students' curiosity as to what happened to Portsville (Seattle) after 1900. A slide of Seattle is the basis of the discussion. There were no questions in the unit test related to this acticity.

Almost ninety percent of the teachers found the directions in the guidelines clear. About three-fourths of the teachers felt that the activity was effective in stimulating student interest and helping students learn what was intended. One teacher would eliminate the activity from the unit, about

half of the teachers would retain it without revision, and the others suggested making some changes.

1. Ten teachers felt that the slide of Seattle was very poor and detracted from the effectiveness of the activity. Several teachers mentioned that the legend was too small for the students to read, and that the names of Puget Sound and Lake Washington were upside down.
2. Ten teachers felt that the slide of Seattle should more closely parallel the map of Portsville. The differences in colors and categories between the two maps were unnecessarily confusing for the students and explanations of these changes were unnecessarily time-consuming.

Comments 1 and 2 above indicate that the slide should be changed. A map rather than a slide could solve both problems. A map of Seattle could be made large enough for all to see and could also be designed specifically with Portsville in mind. The colors used and the land uses shown should be the same for both maps, so that a direct comparison would be possible.

Part IV of the Unit: Planning for Growth

Part IV is designed to develop an understanding of the following concept:

A. City growth gives rise to urban problems. Planning can alleviate some of these problems.

There were three questions on the unit test designed to measure this concept. The results of these three questions are:

Question #	Pretest (% of Students Answering Correctly)	Posttest (% of Students Answering Correctly)	Increase in % of Students Answering Correctly
23	60	71	11
44	48	47	-1
45	31	29	-2

A considerable number of students were able to identify an undesirable land use association, asked for in question 23, even before the unit was taught. However, the decrease in percentage of students correctly answering questions 44 and 45 indicates a need for greater stress on the results of rapid city growth and the multiple causes of undesirable land use associations. Since more than half of the students were not taught this part of the unit, analysis of test results should be cautiously interpreted.

Activity 17: Discussion of Growth and Problems of Home Town (twenty-eight teachers reporting)

Activity 17 is a discussion based on research in the students' home town done by the teacher or students. Topics for student projects are suggested if the teacher feels that time and student interest warrant this more formal method. The discussion is based on the home town's history and growth and the problems of the city as a result of this growth. There were no questions on the unit test directly related to this activity.

All but one teacher felt that the directions in the guidelines were clear. Almost ninety percent of the teachers felt that the activity was effective in stimulating student interest and in helping students learn what was intended. One teacher suggested eliminating the activity, but almost eighty percent of the teachers would retain it without revision. Almost twenty-five percent of the students did not evaluate this activity. However, over eighty percent of the students who did evaluate it found the activity either extremely or generally interesting, with the low ability students expressing somewhat more interest in the discussion than the others.

1. Several teachers had difficulty obtaining appropriate information about their home town. Suggestions as to where this material might be obtained would be a useful addition.

2. One teacher got excellent results by having the students make a map of the local area, showing land use within a small area. This might be a good way to study the local area as well as to lead the students to make use of the concepts in the unit.

Activity 18: Readings in Manual, Part IV (twenty-three teachers reporting)

Activity 18 consists of two readings in the study material. The first is a parable illustrating the connection between flight and blight in cities. The second is a message to Congress by President Kennedy on the need for wise planning of our future urban areas.

Approximately ninety percent of the teachers found the directions for the activity in the guidelines and student materials clear. About seventy percent thought that the activity was effective in stimulating student interest. This coincided with student reactions, with about two-thirds of those who commented on the "Flight and Blight" reading thinking it was generally or extremely interesting. Almost eighty percent of the teachers found the activity effective in helping the majority of students learn what was intended.

One teacher suggested eliminating the activity, but seventy percent of the teachers would retain it without revision. The main criticisms of the other teachers were the difficult vocabulary of the readings and the lack of direction to the teacher as to the purpose of the activity.

Activity 19: Talk by Guest Speaker on Local Problems and for Planning (fourteen teachers reporting)

Activity 19 is an optional activity, completed by only twenty percent of the teachers. The activity involves a talk by someone concerned with urban geography or urban planning. The speaker is asked to focus his talk on the growth and plans of the local area. There were no test questions related

to this activity. Speakers included city planners, members of the local Chamber of Commerce, and editors of local newspapers.

All but one teacher felt that the directions for the activity were clear, and all but one also felt that the activity was effective both in stimulating student interest and in familiarizing students with their local urban problems. Less than one-fourth of the students evaluated the activity, but more than seventy-five percent of those who evaluated it found it extremely or generally interesting. One teacher would eliminate the activity, but over eighty percent of the teachers would retain it without revision.

Activity 20: Film About Urban Problems (nineteen teachers reporting)

For Activity 20, students viewed one or more of three suggested films about urban problems. The three films were: "The Changing City," by Churchill Films; "Urban Sprawl," by Arthur Barr Production; and "Our Changing Environment," by Encyclopaedia Britannica. Ten of the nineteen teachers showed the film "Urban Sprawl." The test results gave little indication of the effectiveness of the film.

All but one teacher found the directions for the activity clear, and all but two teachers thought that the activity was effective in stimulating interest and in helping students learn. More than eighty percent of those students who evaluated the activity found it to be either generally or extremely interesting.

Seventeen of the nineteen teachers reporting suggested retaining the activity without revision, and one teacher would eliminate it. One teacher suggested including an additional activity to give the students an opportunity to attempt to solve the problems posed by the films.

Final Note

The work reported here is only one portion of the effort to test in the classroom the units being developed by the High School Geography Project. It seems important, considering the difficulty of the task of evaluation, to comment briefly about the uses of the data and suggestions that are appropriate.

First, it should be possible to revise, expand, and rewrite certain portions of the student materials.

Secondly, it should be possible to improve the test instrument so that eventual use of the items by classroom teachers may be more helpful.

And finally, it should be possible now to design and execute a much larger study of the usefulness, appropriate student populations for the unit work, and results to be expected from use of the materials.

The classroom trial of this unit has partially set the stage for the fruitful investigation, with a representative sample of schools, of the HSGP settlement theme course. Therefore, we end our report with a note calling for that research and investigation as the materials become available.

Appendices

APPENDIX A*

TEACHER EVALUATIONS OF THE INSIDE THE CITY UNIT

		Yes	No	Omit
A.	**Reading Materials**			
1.	Do you believe the reading materials are clearly written and understandable for the average student?	54	7	
2.	Do you believe the reading materials are clearly written and understandable for the above average student?	61	0	
3.	Do you believe the reading materials are clearly written and understandable for the below average student?	27	27	7
4.	Do you believe the reading materials are well-organized from an instructor's point of view?	49	10	2
5.	Should there be more student reading in the unit?	39	20	2
6.	Should there be less student reading in the unit?	2	55	4
B.	**The Subject Matter in the Unit**			
7.	Is the subject matter of the unit too complicated for students?	5	55	1
8.	Is the subject matter of the unit too simple for students?	8	48	5

9. How would you rate the manner in which the subject matter is organized?

18--Excellent 41--Generally good 2--Somewhat poor 0--Definitely poor

C. **Teacher's Guidelines**

How helpful were the teacher's guidelines in

10. Clarifying the objectives of the unit?

34--Very helpful 25--Generally helpful 2--Somewhat inadequate

0--Definitely inadequate

11. Suggesting a variety of learning activities?

17--Very helpful 38--Generally helpful 5--Somewhat inadequate

1--Definitely inadequate

* Appendix A is based on the responses of sixty-one teachers.

12. Providing needed geographical background, including suggested reference books?

15--Very helpful 33--Generally helpful 11--Somewhat inadequate

0--Definitely inadequate 1--Omit

13. Suggesting supplementary reading materials for students?

6--Very helpful 24--Generally helpful 19--Somewhat inadequate

7--Definitely inadequate 5--Omit

14. Providing guidelines for continuous evaluation of student progress?

13--Very helpful 25--Generally helpful 14--Somewhat inadequate

7--Definitely inadequate 2--Omit

D. <u>The Unit as a Whole</u>	Yes	No
15. Did the unit test adequately measure the content of the unit as you taught it?	44	17

16. Which activity was <u>MOST</u> effective in meeting the objectives of the unit?

5--Site diagrams 5--Time-distance exercise 24--Portsville

7--Commercial land values 3--Home town discussion

17. Which activity was <u>LEAST</u> effective in meeting the objectives of the unit?

12--Readings 4--Maps of high income areas 6--Commercial land values

3--Residential density 4--Portsville 6--Median income

3--Maps of store locations

18. Teachers were to indicate their judgment about the degree of interest each activity had for the majority of students. In the column at the far right each activity was rated as follows: A essential to the unit; B could be made optional; C should be dropped or significantly revised. The number of teachers responding is indicated. Only forty-six of the seventy teachers completed this part of the evaluation form.

Activity	Extremely Interesting	Generally Interesting	Generally Uninteresting	Dull	Rating
Site diagrams and discussion of settlement locations	17	29	0	0	A-36 B-4 C-1
Time-distance exercise	15	24	5	1	A-33 B-5 C-2
Discussion of commercial land values (popcorn and hat salesmen, etc.)	18	20	5	2	A-31 B-3 C-6
Exercise and discussion on residential density (North Chicago)	7	24	13	0	A-26 B-9 C-4
Exercise and discussion of income and distance from CBD (Chicago)	9	27	9	0	A-28 B-6 C-4
Activities related to settlement of Portsville	30	11	2	1	A-30 B-1 C-5
Discussion of growth and problems of your home town	15	17	0	1	A-25 B-7 C-1
Guest speaker	10	6	1	0	A-12 B-11 C-1
Film	10	6	1	0	A-9 B-11 C-0
Various materials in the Student Manual					
Matching United States city site maps with descriptions	9	31	3	1	A-27 B-9 C-3
Reading about Jamestown's site and associated questions	6	29	10	1	A-16 B-17 C-6
Maps of store locations in various cities	9	26	8	1	A-23 B-13 C-14
Maps of areas in cities where high income families live, and associated questions	15	22	8	1	A-26 B-11 C-1
Reading of "Flight and Blight," on problems of cities	14	13	5	1	A-14 B-11 C-5

APPENDIX B*

TEACHER EVALUATIONS OF THE INSIDE THE CITY UNIT ACTIVITIES (CHART I)

Activity	# of Teachers Reporting	Mean # of Class Minutes Spent on Activity	# Suggesting More Time for Activity	# Thinking Teacher's Guide Directions Clear YES	NO	# Thinking Student Directions Clear YES	NO
1	62	45	6	56	6	54	6
2	59	35	6	55	6	**	
3	60	55	3	54	6	50	7
4	60	35	6	55	5	**	
5	62	65	7	52	7	41	18
6	61	55	7	59	2	**	
7	58	35	6	51	7	51	2
8	60	45	5	54	6	52	4
9	59	50	9	55	4	50	9
10	59	30	4	55	4	42	10
11	57	40	7	49	8	**	
12	55	75	17	44	12	**	
13	55	80	18	46	10	**	
14	52	30	8	48	3	43	2
15	54	65	15	44	10	**	
16	49	30	6	44	5	**	
17	28	45	10	25	1	**	
18	23	30	1	20	3	21	1
19	14	50	4	13	1	**	
20	19	35	2	18	1	**	

* Appendix B is based on teacher responses to questions in the Teacher Activity Evaluation Form. The number of teachers who responded to each question in one of the specified ways is indicated.

** There were no student materials for this activity.

TEACHER EVALUATIONS OF THE INSIDE THE CITY UNIT ACTIVITIES (CHART II)

Activity	Effectiveness in Stimulating Student Interest				Effectiveness in Helping Students Learn What Was Intended				Opinion on Whether Activity Should be Retained in Unit			Number of Teachers Reporting
	Very Effective	Generally Effective	Generally Ineffective	Definitely Ineffective	Very Effective	Generally Effective	Generally Ineffective	Definitely Ineffective	Yes, Without Revision	Yes, With Revision	No	
1	35	26	1	0	37	24	1	0	45	16	0	62
2	15	33	10	3	14	37	9	1	39	17	1	59
3	18	32	10	0	22	33	5	0	37	20	0	60
4	23	29	6	2	22	34	3	1	45	14	1	60
5	31	22	9	0	37	17	8	0	44	16	0	62
6	31	23	4	3	23	30	5	3	40	20	1	61
7	8	33	16	1	12	31	13	2	35	22	1	58
8	15	35	8	2	24	31	4	1	31	27	0	60
9	17	33	5	4	23	28	8	0	38	20	0	59
10	16	26	14	3	21	26	9	3	31	25	1	59
11	33	19	5	0	25	24	7	1	35	22	0	57
12	38	13	5	0	26	23	6	1	32	24	0	55
13	36	12	7	1	27	19	8	2	28	26	1	55
14	7	27	17	1	9	26	16	1	20	27	3	52
15	36	9	8	0	30	18	4	1	22	29	0	54
16	16	23	9	1	16	21	9	3	23	21	1	49
17	14	10	3	1	12	12	3	1	21	6	1	28
18	7	9	5	2	6	11	4	1	16	6	1	23
19	10	3	1	0	9	4	1	0	10	1	1	14
20	11	6	1	1	13	4	1	1	17	1	1	19

APPENDIX C

STUDENT EVALUATIONS OF THE INSIDE THE CITY UNIT ACTIVITIES (CHART I)*
(% of students having opinion)

Omit or Did Not Remember				Activity	Extremely Interesting				Generally Interesting				Generally Uninteresting				Dull			
High	Middle	Low	Total		High	Middle	Low	Total	High	Middle	Low	Total	High	Middle	Low	Total	High	Middle	Low	Total
2	1	3	2	Unit as a whole	15	16	24	18	75	76	56	72	4	5	13	6	4	0	3	2
1	1	4	2	Reading materials	4	3	8	4	63	66	55	63	27	25	19	24	5	5	14	7
4	2	8	4	Site diagrams	21	24	25	24	58	60	42	56	10	11	17	12	6	2	8	4
2	4	7	4	Time-distance	16	19	17	18	47	49	45	49	25	21	19	21	9	6	12	8
5	3	5	4	Commercial land values	11	17	19	16	50	54	56	54	28	20	11	20	6	5	9	6
4	4	15	6	Residential density	10	12	12	11	54	50	41	50	25	28	25	27	6	6	7	6
3	4	5	3	Income and distance from CBD	9	15	22	15	64	53	38	53	17	25	23	23	6	4	11	6
1	2	5	2	Portsville	64	63	46	60	27	30	34	31	4	5	8	5	4	0	7	2
30	25	13	25	Growth of home town	21	21	22	22	36	41	45	41	8	11	14	10	3	1	6	2
68	77	73	75	Guest speaker	13	9	12	10	15	10	7	10	2	2	4	2	2	2	4	3
55	63	43	59	Film	10	12	25	14	24	19	19	19	7	5	7	5	4	1	6	3
11	13	17	14	Matching U.S. city maps	16	18	12	16	45	52	47	50	23	12	16	15	5	4	8	5
3	6	13	6	Jamestown	8	10	19	12	50	50	40	48	31	27	19	26	8	8	9	8
7	8	15	9	Maps of stores	12	11	20	13	47	55	36	50	27	22	21	23	7	4	8	5
10	8	11	9	Maps of income	14	16	15	15	55	49	56	52	13	24	9	19	7	3	10	5
31	33	43	34	"Flight and Blight"	20	13	11	14	32	34	21	31	8	19	14	16	9	2	11	5

* Student evaluations are based on response of a twenty percent random sample of papers. Students were to indicate their degree of interest in each activity listed. The middle column lists the percentages of the 288 students who scored in the middle sixty percent on SCAT. The high and low columns list the responses of the sample students who scored in the high and low quintiles on SCAT, 98 and 94 students respectively.

APPENDIX C

STUDENT EVALUATIONS OF THE INSIDE THE CITY UNIT ACTIVITIES (CHART II)*

Activity	% of Students Who Found It MOST INTERESTING				% of Students Who Found It LEAST INTERESTING				% of Students Who Found It Taught Them The Most				% of Students Who Found It MOST DIFFICULT			
	High	Middle	Low	Total	High	Middle	Low	Total	High	Middle	Low	Total	High	Middle	Low	Total
Reading materials	0	0	1	0	7	6	3	6	0	0	1	0	2	2	2	2
Site diagrams	6	8	9	7	7	8	7	8	6	9	8	8	7	8	8	8
Time-distance	10	9	9	9	21	17	20	18	9	10	7	9	23	14	10	15
Commercial land values	2	4	5	4	13	9	8	10	7	5	4	5	4	6	6	6
Residential density	3	2	1	2	3	10	10	9	4	6	3	5	6	10	9	9
Income and distance from CBD	1	3	4	3	8	7	12	8	5	7	10	7	8	15	17	14
Portsville	63	53	30	51	6	4	3	4	45	40	24	38	11	9	7	9
Growth of home	4	5	6	5	1	3	0	2	6	4	7	5	4	2	3	3
Guest speaker	5	3	3	4	1	1	1	1	4	1	2	2	0	0	0	0
Film	0	2	8	3	4	1	1	2	2	1	4	2	0	0	2	0
Matching U. S. city maps	2	1	4	2	4	2	7	3	1	0	3	1	5	2	4	3
Jamestown	1	0	0	0	9	11	6	10	0	0	1	0	0	3	0	2
Maps of stores	0	0	0	0	5	1	0	2	0	0	1	0	4	3	2	3
Maps of income	1	0	2	1	0	3	1	2	1	2	4	2	1	3	1	2
"Flight and Blight"	1	1	0	1	5	5	6	5	0	2	1	1	0	2	3	2
Omit	0	8	16	8	4	11	15	10	7	10	19	15	25	22	26	20

* Student evaluations are based on response of a twenty percent random sample of papers. The middle column lists the percentages of the 288 students who scored in the middle sixty percent on SCAT. The High and Low columns list the responses of the sample students who scored in the high and low quintiles on SCAT, 98 and 94 students respectively.

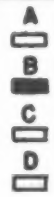
APPENDIX D

FORM OHS

INSIDE THE CITY UNIT TEST

Time—40 minutes

YOU ARE TO INDICATE ALL YOUR ANSWERS ON THE SEPARATE ANSWER SHEET. No credit will be given for anything written in the test book. After you have decided which of the suggested answers you want to give for a question, blacken the corresponding space on the answer sheet.

Example:	Sample Answer
Chicago is a (A) state (B) city (C) country (D) continent	

Give only one answer to each question; no credit will be given for multiple answers. If you wish to change an answer, erase your first line completely and mark your new choice.

DO NOT OPEN THIS BOOK UNTIL YOU ARE TOLD TO DO SO.

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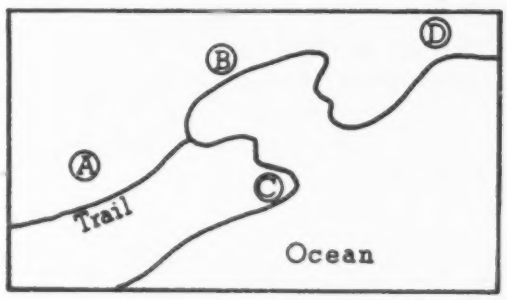
606353
Y96P4.2

Time—40 minutes

Directions: Each of the questions or incomplete statements below is followed by four suggested answers or completions. Select the one which is best in each case and then blacken the corresponding space on the answer sheet.

1. A suburban residential area developing during the 1960's would most likely be located near the crossing of

   (A) a railroad and a river
   (B) a river, a railroad, and a major highway
   (C) a river and a state highway
   (D) two freeways



2. In 1790, a settlement would most probably have been located at site

   (A) A (B) B (C) C (D) D

3. Which of the following statements about cities are correct?

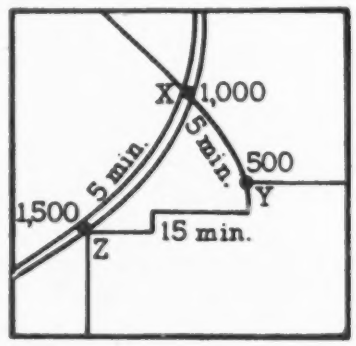
   I. Cities must be accessible to transportation routes.
   II. Railroad development has limited the growth of cities.
   III. Characteristics of favorable sites for cities change with time.

   (A) I and II only
   (B) I and III only
   (C) II and III only
   (D) I, II, and III

4. Retail store owners are likely to be more interested than residential land owners in

   (A) accessibility to large numbers of people
   (B) accessibility to industrial areas
   (C) being close to major scenic attractions
   (D) being near important highways

Questions 5-6 are based on the following map. The figures represent each town's population and the time in minutes it takes to drive from one town to another.



5. Which town is most accessible to the people in the area shown on the map?

   (A) X
   (B) Y
   (C) Z
   (D) It cannot be determined from the information given.

6. Which town is LEAST accessible to the people in the area shown on the map?

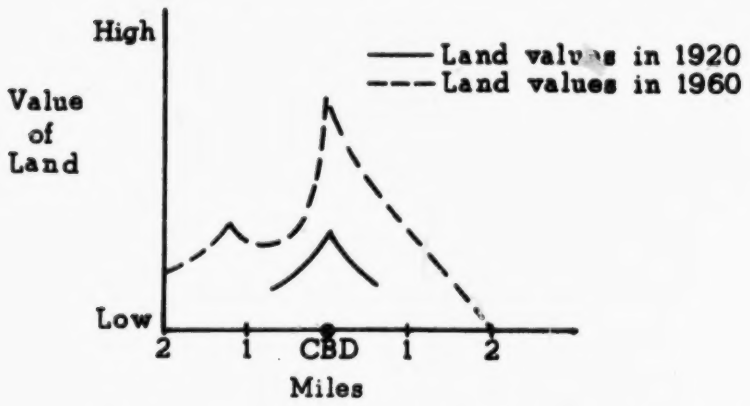
   (A) X
   (B) Y
   (C) Z
   (D) It cannot be determined from the information given.

7. Land with the highest value in the central part of a city would most likely be used for a

   (A) factory
   (B) used-car lot
   (C) ten-story office building
   (D) furniture store

GO ON TO THE NEXT PAGE.

8. The following diagram indicates the relationship between land values and distance from the central business district of Hadleyville in two different time periods. What are likely conclusions?



I. A secondary business district has developed in Hadleyville.
II. The population of Hadleyville increased from 1920 to 1960.
III. The location of the central business district has remained about the same.

(A) I and II only
(B) I and III only
(C) II and III only
(D) I, II, and III

9. Which of the following is NOT an example of a specialty goods store?

(A) Fashionable gift shop
(B) Fur shop
(C) Variety store
(D) Music store

10. Which of the following are usually characteristic of shoe stores?

I. They are located close to competitors.
II. They are spread evenly about the city.
III. They depend on customers' going from one store to another.

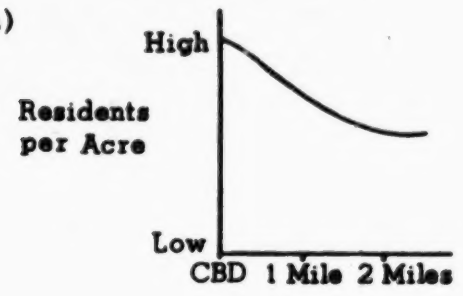
(A) I and II only
(B) I and III only
(C) II and III only
(D) I, II, and III

11. Residential land includes land used only for

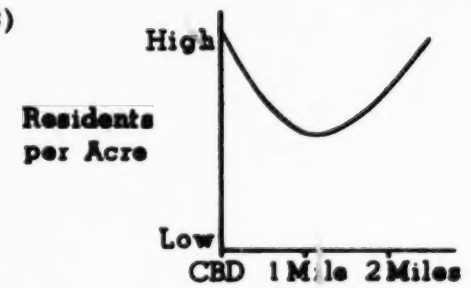
(A) industries and apartments
(B) houses and stores
(C) houses and apartments
(D) streets, houses, and apartments

12. Which of the following graphs correctly represents the correct relationship between residential density and distance from the central business district in most North American cities?

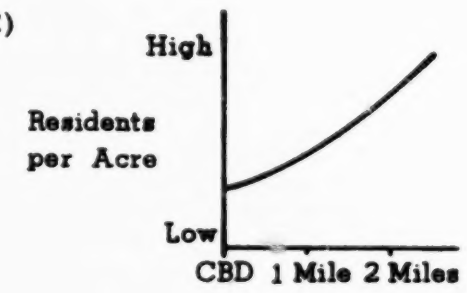
(A)



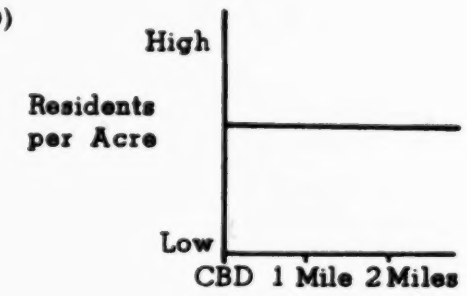
(B)



(C)



(D)



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13. The median income of families earning $5,000, $7,000, $4,000, $13,000, and $6,000 per year is

(A) $4,000
(B) $6,000
(C) $7,000
(D) $9,000

14. Which of the following are true statements concerning areas with high residential densities?

I. Living quarters are often crowded.
II. Incomes tend to be low.
III. They are found close to the center of the city.

(A) I and II only
(B) I and III only
(C) II and III only
(D) I, II, and III

15. Which of the following is most likely to bring money into the city from outside?

(A) A hotel
(B) A police department
(C) A school
(D) A drug store

16. All of the following statements about cities are correct EXCEPT:

(A) The support of a city depends on the services it performs not for itself but for a tributary area.
(B) Income from outside can be earned by the city by selling goods to people in other communities.
(C) The city is like a big family whose prosperity depends on its ability to bring in money.
(D) In most North American communities, residents produce the goods and services they require.

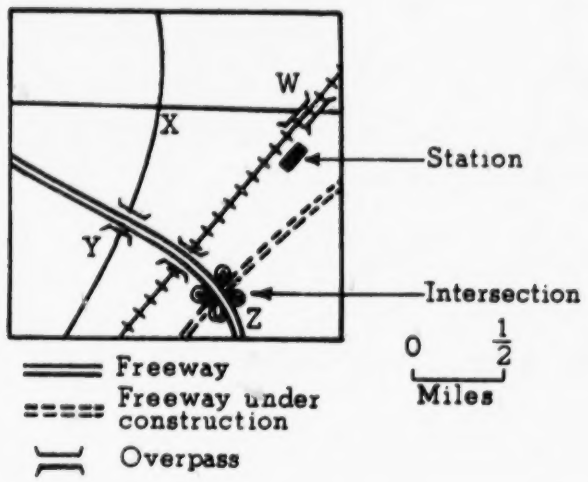
17. Rapid growth of cities can be attributed primarily to an increase in the number of

(A) educational facilities
(B) transportation facilities
(C) employment opportunities
(D) recreation areas

18. Each of the following types of towns is correctly paired with the economic activity most likely to bring about growth EXCEPT

(A) Washington, D. C. .. government
(B) Chicago, Illinois .. education
(C) Miami, Florida .. tourism
(D) Detroit, Michigan .. manufacturing

Questions 19-20 refer to the following map of an urban area.



19. Which part of the urban area has the best chances for growth?

(A) W
(B) X
(C) Y
(D) Z

20. Which part of the urban area is LEAST likely to grow?

(A) W
(B) X
(C) Y
(D) Z

---

21. Which of the following would most likely be found in the center of the central business district?

(A) Specialty goods stores
(B) Wholesale establishments
(C) Industry
(D) High-income residences

22. Which of the following is (are) characteristic of the location of wholesale establishments?

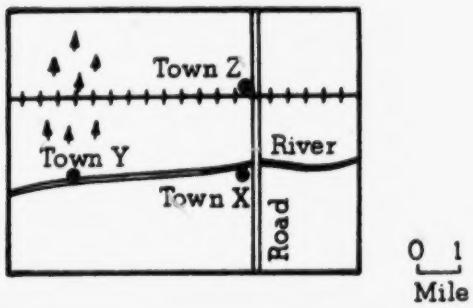
I. Nearness to concentrations of retail stores
II. Nearness to the suburbs
III. Nearness to transportation routes

(A) I only
(B) III only
(C) I and III only
(D) I, II, and III

GO ON TO THE NEXT PAGE.

23. Which of the following is an example of an undesirable land use association?

(A) Parks next to schools
(B) Residences next to industry
(C) Wholesale establishments next to retail stores
(D) Light manufacturing next to railroad yards



24. Which of the following is probably the order in which Towns X, Y, and Z were founded, beginning with the one settled first?

(A) X, Z, Y
(B) Y, X, Z
(C) Z, X, Y
(D) Z, Y, X

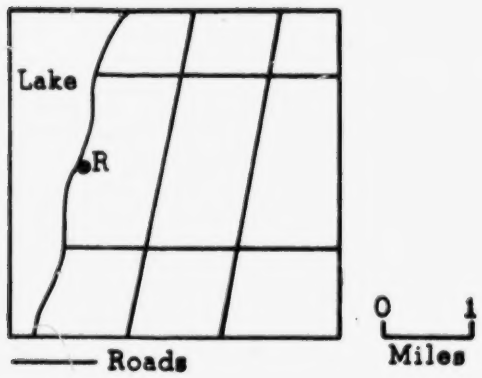
25. Which of the following statements concerning most large cities are correct?

I. They are on or near a body of water.
II. They are served by railways.
III. They were founded after 1850.

(A) I and II only
(B) I and III only
(C) II and III only
(D) I, II, and III

26. Rivers are less commonly settlement sites in 1966 than they were in 1766 because

(A) it is less important for a community to have a water supply than it used to be
(B) most rivers are polluted
(C) most of the good sites along rivers have already been settled
(D) other forms of transportation have become more popular



27. The map above shows a portion of a large city. Site R contains which of the following kinds of land use?

(A) Residential
(B) Commercial
(C) Industrial
(D) It cannot be determined from the information given.

28. Time distance is a measure of

(A) city growth
(B) median family income
(C) accessibility
(D) residential density

29. In order to determine which point within a city is most accessible in terms of time-distance, it is important to know the

(A) number of miles between each point
(B) number of different types of transportation between each point
(C) type of terrain between each point
(D) population around each point

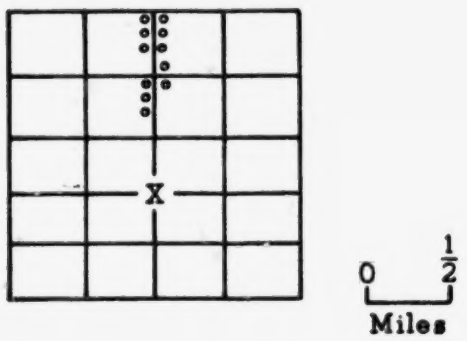
30. Which of the following is likely to occupy the LEAST valuable land in a city?

(A) Single-family residences
(B) High-rise apartments
(C) Automobile salesrooms
(D) Office buildings

GO ON TO THE NEXT PAGE.

31. Which of the following is an example of a convenience goods establishment?

(A) Clothing store
(B) Furniture store
(C) Used-car lot
(D) Grocery store



32. The map above shows the locations of a certain kind of retail establishment in a portion of a city. X marks the center of the central business district. The map shows the locations of which kind of retail establishment?

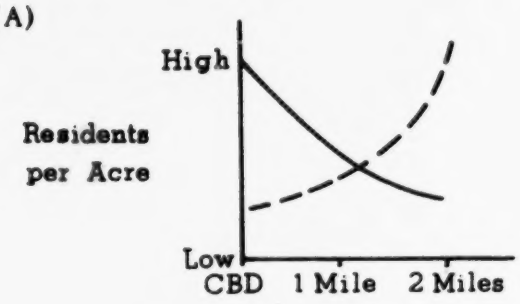
(A) Used-car lot
(B) Grocery store
(C) Drug store
(D) Meat market

33. If 6,000 people occupy 30 acres of residential land, the number of people per residential acre is

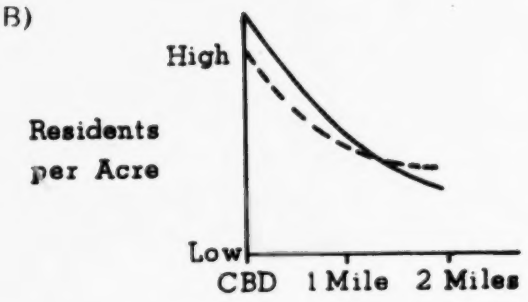
(A) 20
(B) 200
(C) 500
(D) 5,000

34. Which of the following graphs best depicts the change in the relationship between residential density and distance from the central business district in 1900 and 1960 ?

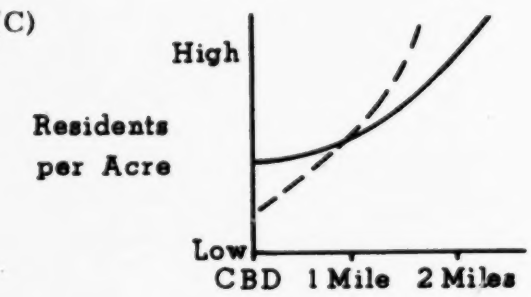
(A)



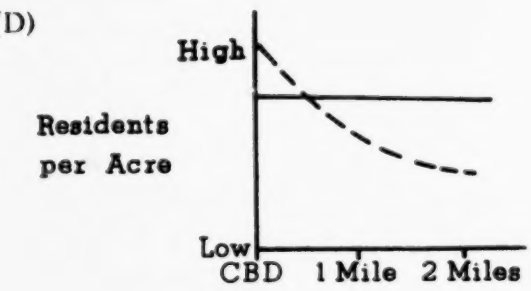
(B)



(C)



(D)



GO ON TO THE NEXT PAGE.

35. As compared with the median family income of families living 3 miles from the central business district of Chicago, the median family income of families living 7 miles from the center would probably be

(A) lower
(B) about the same
(C) higher
(D) impossible to predict

36. Where do most urban families with low annual incomes tend to reside?

(A) Close to the central business district
(B) Far from the central business district
(C) Spread evenly throughout a city
(D) No generalization can be made.

37. In what kind of housing are both residential densities and median family incomes generally high?

(A) Tenements (slums)
(B) Luxury high-rise apartments
(C) Single-family residences
(D) Farmhouses

38. A city's basic industries provide

(A) goods and services for people outside of the city
(B) goods to fulfill the needs of city residents
(C) services for people within the city
(D) such basic necessities as food, clothing, and shelter

39. Which of the following is likely to be most responsible for city growth?

(A) Establishment of recreation centers for teenagers
(B) Introduction of a chain of shopping centers
(C) Construction of a steel plant
(D) Improvement of the central business district

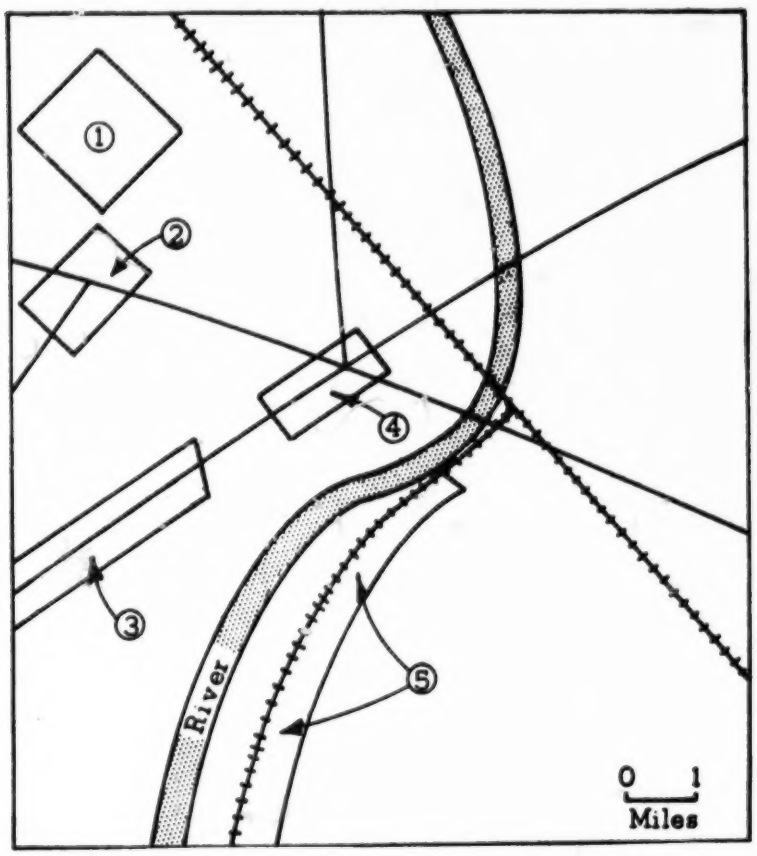
40. Which of the following is most important for the growth of a city?

(A) Availability of natural resources
(B) A favorable site for industry
(C) Trade with other areas
(D) A large number of industrial workers

41. All of the following help explain why American settlers in the 1800's wanted their towns to be along railroad lines EXCEPT:

(A) Goods could be shipped out of the town.
(B) Goods could be brought into the town.
(C) New settlers could get to the town easily.
(D) Other forms of transportation would no longer have to be used.

Questions 42-43 refer to the following map of an imaginary city.



42. The central business district would most likely be located at

(A) 2 (B) 3 (C) 4 (D) 5

43. An industrial district would most likely be located at

(A) 1 (B) 3 (C) 4 (D) 5

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44. Rapid city growth is likely to result in

(A) a decrease in trade with other areas
(B) an inadequate transportation system
(C) improved school facilities
(D) a decrease in air pollution

45. Which of the following can lead to undesirable land-use patterns?

I. The conflicting interests of those who wish to use the land
II. Stagnation in a city's economy
III. Rapid growth in an urban area

(A) I and II only
(B) I and III only
(C) II and III only
(D) I, II, and III

IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.